



This fact sheet will tell you about:

- The history of the site.
- The findings of the contamination study.
- The next steps in the cleanup process.
- How you can obtain more information.

Public Meeting

U.S. EPA is holding a public meeting to discuss the results of the recently completed contamination study (Remedial Investigation) at the Hi-Mill site. Representatives from U.S. EPA and the Michigan Department of Natural Resources will be available to answer questions about the site, the Remedial Investigation, and the cleanup process. All interested residents and officials are encouraged to attend.

DATE: April 13, 1993

TIME: 7:30 p.m.

PLACE: Township Auditorium
Highland Township Hall
205 N. John Street
Highland, MI

United States
Environmental Protection
Agency

Office of Public Affairs
Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604

Illinois Indiana
Michigan Minnesota
Ohio Wisconsin

Superfund Fact Sheet

Contamination Study Results Released Hi-Mill Manufacturing Superfund Site Highland, Michigan

US EPA RECORDS CENTER REGION 5



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April 1993

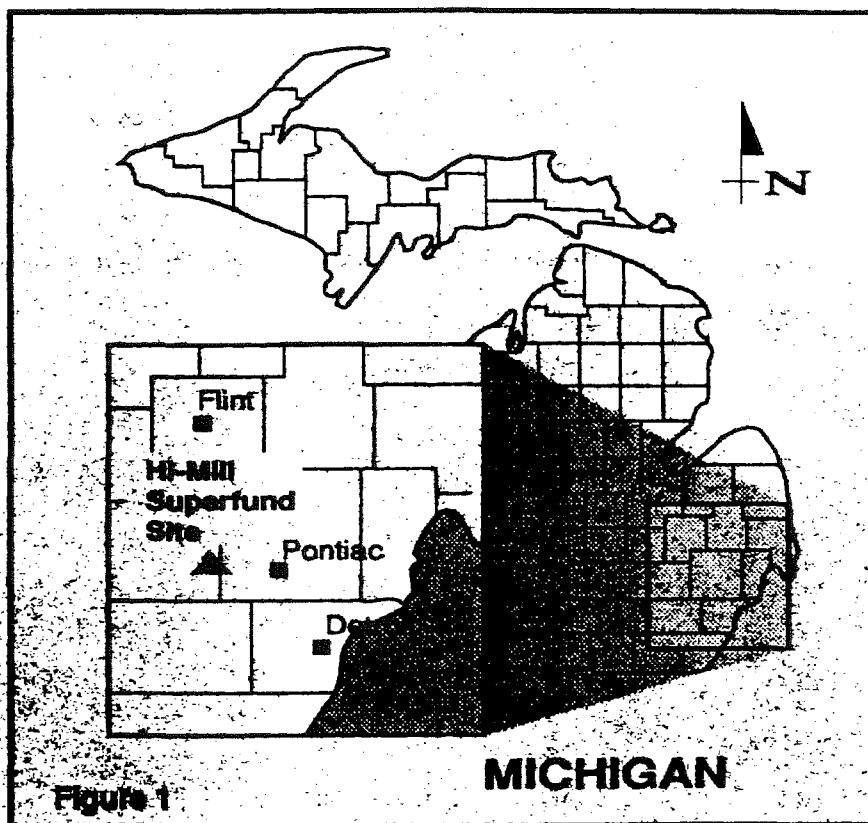


Figure 1

■ Introduction

The U.S. Environmental Protection Agency (U.S. EPA), in cooperation with the Michigan Department of Natural Resources (MDNR), recently completed a study of the nature and extent of contamination at the Hi-Mill Manufacturing Company Superfund site. This study is the first part of a two-part study called a Remedial Investigation/Feasibility Study (RI/FS). Hi-Mill Manufacturing Company (Hi-Mill) is carrying out the RI/FS under the terms of a legal agreement called an

Administrative Order by Consent (Consent Order), which Hi-Mill and U.S. EPA signed in October 1988. Hi-Mill was identified as a Potentially Responsible Party (PRP) for the Hi-Mill Superfund site. The RI involved extensive field sampling and laboratory analysis of soil, groundwater, surface water, and sediments at the site and in neighboring areas. The results were evaluated to determine what impacts site contaminants may have on the surrounding

environment and what risks they may pose to human health and the environment. The complete RI Report is available in the site information repository at the Highland Township Library (see back page). This fact sheet summarizes the results of the RI and explains the next steps toward cleaning up the site.

Note: Items in bold face appear in the glossary on page 4.

■ Background on the Hi-Mill Superfund Site

Site Location and Description

The Hi-Mill Manufacturing plant is located in southeastern Michigan in Highland Township, Oakland County, about 1.5 miles east of the town of Highland (Figures 1 and 3). The irregularly shaped site is four and one-half acres, with the Hi-Mill building and parking area occupying most of the site (Figure 2).

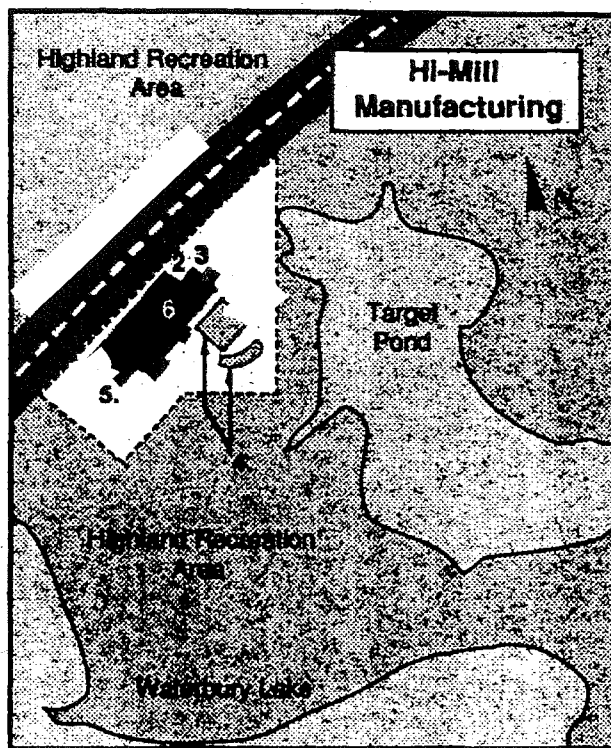
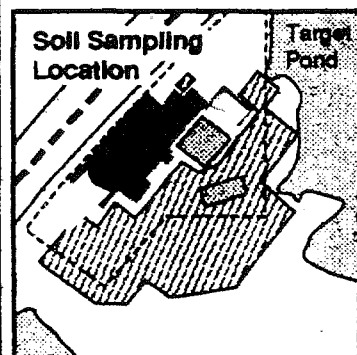
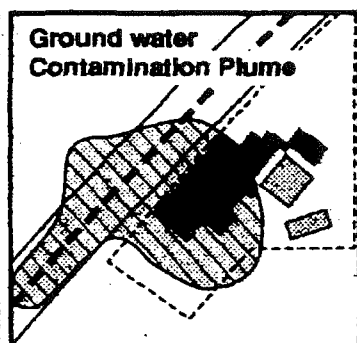
Highland Road (M-59), a four-lane divided highway, runs to the west of the site. The rest of the site is surrounded by the Highland State Recreation Area, which is owned and maintained by MDNR. Much of the Recreation Area is considered wetlands property. Target Pond, a marshy area of approximately 10-acres,

bought out the business in 1957 and remain the owners. The Hi-Mill Manufacturing plant makes tubular aluminum, brass, and copper parts.

Hi-Mill operations consist of two main processes: (1) anodizing (or "pickling") to brighten up metals, and (2) degreasing to clean them. As part of plant operations, metals were bathed in tanks containing acids. Hi-Mill employees periodically emptied these tanks of process wastewater containing residues of acids and such heavy metals as copper, aluminum, chromium, and zinc. From 1946 until 1979, this wastewater was

smaller lagoon south of the original one. This second lagoon was designed to receive overflow from the original lagoon.

On two separate occasions in 1976 and 1977, the big lagoon overflowed into the marsh bordering the site. The overflow came to the attention of U.S. EPA, and Hi-Mill applied for a special NPDES permit to authorize the discharges. U.S. EPA did not concur with a permit being issued by the state. MDNR then ordered Hi-Mill to stop discharging untreated wastewaters into the lagoon, requesting that the company design a wastewater



- 1.
2. Former Underground Storage tanks
3. Former Solvent Storage Tank
4. Former Waste Water Lagoons
5. Solvent Storage Tanks
6. Former TCE Degreasing

Figure 2

borders the site to the east, and Waterbury Lake lies about 1,000 feet to the south. The immediate area around Hi-Mill is sparsely populated and rural in nature. The nearest homes are about 2,000 feet east and southeast of the site, along Waterbury Road.

Site History

The Hi-Mill Manufacturing Company began in 1946 as a partnership between Robert F. Beard of Highland and Raymond Unruh of Troy, Michigan. Robert and Richard Beard

discharged into a clay-lined lagoon at the Hi-Mill site. The lagoon was about 10 feet deep, 100 feet long, and 100 feet wide.

Prompted by complaints from Hi-Mill employees to MDNR, on-site wells and the adjacent marsh were sampled in 1972. Both were found to contain metals contamination. Waterbury Lake was sampled in 1975 and also was found to be contaminated by heavy metals.

In the fall of 1976, Hi-Mill built a second,

recycling program. The recycling system was implemented in 1981, but the already-contaminated lagoons remained a problem.

Attempting to clean up the big lagoon between 1981 and 1983, Hi-Mill evaporated liquid in the lagoon using a spray technique. This technique involved spraying acids and metals from the pickling waste into the air. The spray nozzles were located on top of the production facility and on an

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■ Remedial Investigation (RI) Findings

The objectives of the RI at the Hi-Mill Manufacturing site were to: (1) determine the characteristics and extent of contaminants; (2) define the pathways through which contamination can travel; (3) define any physical features that could affect contaminant migration and possible remedies; (4) quantify the risk to public health and the environment; and (5) gather all information necessary to explore possible cleanup methods. The RI was conducted between 1989 and 1992. The RI investigations included studies of groundwater, soils, the marsh's surface water and sediment, and the risks to human health and the environment from the site contaminants.

Groundwater Study

The groundwater investigation included installing monitoring wells and sampling the groundwater. The sampling results show that the shallow aquifer below the Hi-Mill property and M-59 has been contaminated by on-site sources. (See Figure 2.) Several volatile organic compounds (VOCs) were detected in the groundwater samples. The VOCs of primary concern are trichloroethylene (TCE), 1,2-dichloroethylene (DCE), and vinyl chloride. Both DCE and vinyl chloride are breakdown products of TCE.

The primary source of the VOC contamination is believed to be the accidental release of about 250 gallons of chlorinated solvents from the underground piping that leads to the solvent storage tank on the north side of the facility.

Soils Study

The site soils investigation included surface and subsurface soil sampling. The sampling results show that on-site soil near the Hi-Mill facility has been contaminated with organic and inorganic chemicals. (See Figure 2.) The primary sources of the organic contamination are believed to be the accidental release of chlorinated solvents, and the former and current solvent storage tanks located on the north and southwest sides of the facility. The primary sources of the inorganic contamination are

believed to include the wastewater lagoons located at the rear of the facility and the abandoned wastewater recycling system.

Marsh Surface Water and Sediment Study

The investigation of the marsh's surface waters and sediment included sampling water and sediment in Target Pond and Waterbury Lake, both located near the site, and taking an ecological inventory. The sediments in Target Pond show concentrations of inorganics, apparently from the Hi-Mill facility. However, there do not appear to be any adverse environmental effects from these inorganics. The surface water in Target Pond and Waterbury Lake and the sediments in Waterbury Lake do not appear to be severely affected by the inorganics.

The site ecological inventory included a survey of plants and wildlife, and an aquatic survey of Target Pond. The survey results do not indicate any adverse impacts to plants, wildlife, or aquatic life from Hi-Mill's activities.

Risk Assessment

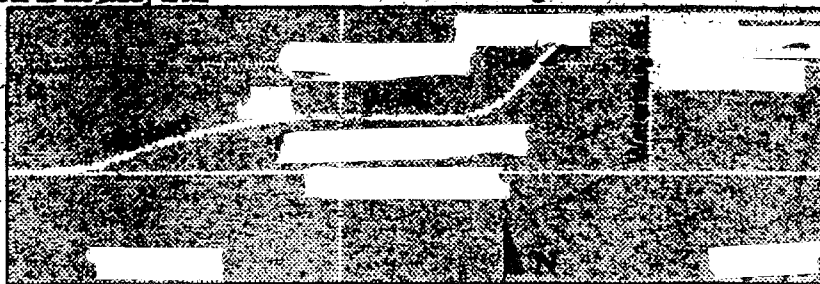
The risk assessment is a three-part analysis to determine the problems to human health and the environment that could result if site-related contamination is not cleaned up. First, the risk assessment compares contamination levels at the site with State and Federal standards. Second, the analysis considers the pathways by which people and wildlife could be exposed to site-related contaminants. Third, the analysis considers whether such exposure could increase the incidence of carcinogenic (cancer-related) and noncarcinogenic (non-cancer-related) diseases beyond the levels that normally occur in the study area.

The contaminants of chief concern at the Hi-Mill site are the VOCs (TCE, DCE, and vinyl chloride) in the groundwater both on- and off-site. There are no unacceptable risks from inorganic chemicals associated with site activities. The pathways by which people could come into contact with the site contaminants are by eating or drinking them (ingestion), breathing them (inhalation), or absorbing them through the skin (dermal contact).

The RI determined that current Hi-Mill workers are not at an unacceptable level of risk for cancer-related diseases caused by exposure to soil at the site. Current worker exposure to site groundwater was not evaluated because there is no indication that workers are exposed to this groundwater. (The shallow aquifer below the Hi-Mill property and M-59 is not used for drinking water by Hi-Mill or for residential wells.) However, if the site is developed for residential use in the future, the adult and child residents on-site who use site groundwater regularly may be at risk for cancer by ingesting, inhaling, or having skin contact with the groundwater.

In addition, some site-related contaminants could pose a risk of such noncarcinogenic health problems as blood, liver, or kidney disorders. The RI risk assessment concludes that although current Hi-Mill workers are not at an unacceptable level of noncarcinogenic health risk, there may be an unacceptable level of noncarcinogenic risk to future on-site residents who ingest or have direct contact with the site groundwater.

In summary, the risk assessment shows there is no current health risk from exposure to site soils or groundwater. The risks apply only to future residents on-site, if any, who ingest, inhale, or have direct skin contact with site groundwater.



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eight-foot fence behind the facility. There is a possibility that sprayed particles may have been carried into Target Pond and Waterbury Lake. In 1983, MDNR ordered Hi-Mill to stop this practice.

In November 1983, under MDNR supervision, Hi-Mill cleaned up the big lagoon by removing 142 cubic yards of contaminated soil, 34,400 gallons of contaminated sludge, and 63,300 gallons of contaminated water. Sand was used to fill in the hole. The small lagoon was not evident at the time of this cleanup work; its fate remains unknown.

Following this action, samples taken by MDNR showed that removal of the water

and sludge significantly reduced the levels of metals in on-site soils. However, other samples showed elevated levels of toxic metals in sediments from the nearby wetland and Waterbury Lake.

Between 1978 and 1980 (the exact date is unknown), some construction activities for an addition on the northeast side of the Hi-Mill building resulted in damage to the piping that carried solvents between a former above-ground storage tank and the degreaser. As a result of the damage, up to 250 gallons of solvent leaked from the damaged underground product line.

Samples of two wells taken on-site in 1988 indicated that drinking water at Hi-Mill

was contaminated with trichloroethylene (TCE). A new well was installed in 1989 to provide Hi-Mill employees with safe drinking water. Before the new well was hooked up, bottled water was offered at the facility. The two contaminated wells now have been abandoned.

On June 24, 1988, the Hi-Mill site was proposed to be placed on U.S. EPA's National Priorities List (NPL), a roster of hazardous waste sites eligible for investigation and cleanup under the Superfund Program. On October 5, 1988, a Consent Order was signed between Hi-Mill and U.S. EPA authorizing Hi-Mill to conduct an RI/FS. RI field work and laboratory analyses took place between 1989 and 1992.

■ Glossary

Anodizing ■ A process that uses electrical current to brighten, coat, and protect metals.

Aquifer ■ A layer of rock or soil below the ground surface that can supply usable quantities of groundwater to wells and springs.

Carcinogen ■ A substance that causes cancer.

Consent Order ■ An agreement between U.S. EPA and the Potentially Responsible Parties (PRPs) that describes the specific activities the PRPs will conduct at a hazardous waste site.

1,2 Dichloroethylene (DCE) ■ A volatile organic compound used as a solvent. This compound may cause blood disorders.

Groundwater ■ Precipitation (rain, snow, hail, etc.) that soaks into the ground and eventually collects in the aquifer. When groundwater accumulates in usable quantities within an aquifer, it may be used as a source for drinking water or other purposes.

Heavy Metals ■ Metals including arsenic, lead, chromium, cadmium, mercury, and zinc that can be toxic at relatively low concentrations.

Inorganic Chemicals ■ Chemical elements or compounds that do not contain carbon. Examples include lead, chromium, cadmium, and zinc.

Monitoring Wells ■ Special wells drilled at specific locations on or near a hazardous waste

site where groundwater can be sampled from various depths. The samples are analyzed to determine what types and amounts of contaminants are present.

National Priorities List (NPL) ■ A federal roster of uncontrolled hazardous waste sites that actually or potentially threaten human health or the environment and are eligible for investigation and cleanup under the federal Superfund program.

NPDES ■ National Pollutant Discharge Elimination System Permit. Establishes levels of contaminants that may be present in wastewater discharged from industrial facilities.

Organic Chemicals ■ Chemicals composed mostly of carbon, including such materials as petroleum, solvents, oils, or pesticides.

Potentially Responsible Party (PRP) ■ Any individual(s) or company(s) (such as owners, operators, transporters, or generators) potentially responsible for, or contributing to, the contamination problems at a Superfund site. Whenever possible, U.S. EPA requires PRPs, through administrative and legal actions, to clean up hazardous waste sites they have contaminated.

Remedial Investigation/Feasibility Study (RI/FS) ■ A two-part study of a Superfund site that must be completed before a cleanup can begin. The first part, the Remedial Investigation, determines the nature and extent of contamination at a Superfund site. The second part, or Feasibility Study, evaluates several alternative remedies (including no action) that

address the problems identified during the Remedial Investigation.

Sediment ■ Sand, soil, gravel, and decomposing animals and plants that settle to the bottom of a stream, lake, river, or other body of water.

Sludge ■ A highly-concentrated, solid or semisolid by-product of municipal or industrial wastewater treatment processes.

Solvents ■ Liquids capable of dissolving other liquids or solids to form a solution. The chief uses of industrial solvents are as cleaners and degreasers. Solvents used in industrial applications are frequently VOCs. Many solvents are flammable and toxic to varying degrees.

Surface Water ■ Streams, lakes, ponds, rivers, or any other body of water above the ground.

Superfund ■ The common name used for the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The Superfund Amendments and Reauthorization Act (SARA) was passed by Congress in 1986 to update and improve the Superfund law. Superfund authorizes the federal government to respond directly to releases, or threatened releases, of hazardous substances that may endanger public health, welfare, or the environment. CERCLA established a \$1.6 billion Hazardous Waste Trust Fund made up of taxes on crude oil and commercial chemicals. When Superfund was reauthorized by Congress in 1986, the fund was increased to \$8.5 billion. The U.S. EPA is responsible for managing the Superfund program.

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■ Feasibility Study and Future Steps

Laws enacted by Congress in 1980 and 1986 established Superfund as a program to investigate and clean up actual and potential releases of hazardous substances at sites throughout the United States. U.S. EPA administers the Superfund program in cooperation with individual states.

The Superfund process involves several steps:

- Identification of a potential site
- Assessment of a site's impact on human health and the environment
- NPL Listing (placement on the National Priorities List of hazardous waste sites)
- Contamination Study (Remedial Investigation) through field work and analysis of results
- Cleanup Options (Feasibility Study) to evaluate the alternatives for addressing the site contaminants
- Cleanup Decision, a step taken only after the public, and state and local officials have an opportunity to comment on the preferred remedy
- Final Remedy (Cleanup Design and Action)

The Hi-Mill site is now moving into the Cleanup Options stage, or Feasibility Study (FS). The FS will examine possible ways of cleaning up contamination at the Hi-Mill site. The FS report will detail and evaluate each alternative according to the cleanup criteria that U.S. EPA uses for all Superfund sites. Based on this evaluation, U.S. EPA and MDNR will propose a preferred cleanup alternative to the community. There will be a 30-day public comment period to allow interested individuals and groups the opportunity to comment on the proposed cleanup plan. U.S. EPA and MDNR, taking public comments into account, will then select a final remedy for the site.

■ Glossary continued from page 4

Trichloroethylene (TCE) ■ An organic compound used primarily as a solvent for oils, waxes, and fats. Short-term exposure to high concentrations of TCE can irritate the eyes and mucous membranes and can produce narcotic effects. Long-term exposure to this compound may cause cancer.

Vinyl Chloride ■ A volatile organic com-

pound used in industrial processes to make plastics. It is extremely toxic and is a known carcinogen.

Volatile Organic Compound (VOC) ■ A group of organic compounds that tend to evaporate when exposed to air. Since groundwater does not usually come in contact with air, VOCs in groundwater are not easily released. If groundwater containing VOCs is used for drinking water, VOCs

may pose a potential threat to human health. Some VOCs are believed to cause cancer in humans. Examples of VOCs include toluene, trichloroethylene, and vinyl chloride.

Wetlands ■ Areas of land (such as marshes or swamps) containing substantial soil moisture.

■ Mailing List

U.S. EPA compiles a mailing list of interested residents for each Superfund site. If you did not receive this fact sheet in the mail, you are not on the mailing list for the Hi-Mill Superfund site. To add your name to the site mailing list, please fill out this form, detach, and mail to:

Lawrence Leveque (PS-19J)
Office of Public Affairs
U.S. EPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604
(312) 886-4359

Name _____

Affiliation _____

Address _____

City _____ State _____ Zip _____

■ For More Information

U.S. EPA AND MDNR CONTACTS

The following U.S. EPA and MDNR personnel may be contacted if you have further questions about the Hi-Mill Superfund site:

Lawrence Leveque (PS-19J)
Community Relations Coordinator
Office of Public Affairs
77 West Jackson Boulevard
Chicago, IL 60604
(312) 886-4359

Karla Johnson
Remedial Project Manager
Office of Superfund (HSRW-6J)
U.S. EPA Region 5
(312) 886-5993

Deborah Larson
Project Manager
Environmental Response Division
Michigan Department of Natural
Resources
P.O. Box 30028
Lansing, MI 48909
(517) 373-4825

Information Repository

If you would like to review the RI Report or other documents about the Hi-Mill site, you may consult the information repository in Highland. Information repositories contain laws, work plans, community relations plans, technical reports, and other documents relevant to the investigation and cleanup of Superfund sites. An information repository for the Hi-Mill Superfund site has been set up at the following location:

Highland Township Library
205 West Livingston
P.O. Box 277
Highland, MI 48357
(313) 887-2218

Contact: Jude Halloran,
Library Director

U.S. EPA Region 5

77 West Jackson Boulevard ■ Chicago, Illinois 60604

Call Toll Free:
1-800-621-8431

10:00 a.m. to 5:30 p.m.
Eastern Time



Office of Public Affairs (PS-19J)
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604